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EXAMINER

CLARDY, S

ART UNIT PAPER NUMBER

1617

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Art Unit: 1617

Claims 1, 2, 4, and 7-10 are pending in this application which has been filed under 35 USC 371 as the national stage of international application.

Applicants claims are drawn to compositions comprising colloidal (claim 2) titanium dioxide nanoparticles (which are useful for promoting plant growth), with a particle size ranging from 3 to 200 nm, in a concentration of 1 to 1000 ppm (= 1 mg/L to 1 g/L, or 0.0001 to 0.1%). The compositions may further comprise known plant nutrients (claims 8, 10) or silver nanoparticles (claim 9). No methods are claimed.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1, 2, 4, and 7 are again rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Aubay et al (US 6,905,814). Aubay et al teach film-forming titanium dioxide dispersions for cleaning and disinfecting surfaces comprising TiO₂ nanoparticles which are dispersed in water (abstract) along with pH regulating acids (col 2, lines 36-47), and surfactants (line 53+). The concentration of TiO₂ ranges from 0.01% (or 100 ppm) to 15%. In the examples (col 7-8), dispersions comprising anatase TiO₂ in the form of 40 nm particles are disclosed. Aubay et al is nonanalogous art; however, end-utility is irrelevant when the compositions described in Aubay et al read on the compositions as claimed herein.

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Claim 1 is again rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Soane et al (US Publication 2003/0013369). Soane et al discloses cosmetic sunblock compositions comprising dispersed TiO₂ nanoparticles. Particles with a diameter of less than 30 nm are described as being transparent, while those of 30-35 nm are cloudy in dispersions (para 122). Again, the end-utility is irrelevant for a composition claim.

Claim 1 is again rejected under 35 U.S.C. 102(a), (b), and (e) as being anticipated by Marchi-Lemann et al (US 6,132,745). Marchi-Lemann et al teach cosmetic compositions comprising pigment nanoparticles and fillers (abstract), and discloses that TiO₂ nanoparticles were known in cosmetic dispersions (col 1, lines 11-26). The size of the pigment particles ranges from 0.01 to 0.15 μ (= 10 to 150 nm). Again, end utility is irrelevant.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, and 7-10 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al (US 6,235,683). Glenn et al teach frost protecting compositions for application to plants comprising particulate material with a particle size of about 100 μ m or less, thus encompassing applicant's range. Titanium dioxide is disclosed as one of the possible particulate components (columns 4-5). Various solvents, surfactants, and dispersants may be incorporated into the compositions (column 8) to form a slurry.

Thus, again, it would have been *prima facie* obvious to the ordinary artisan at the time the invention was made to have made applicants' nanoparticulate TiO₂ composition because the

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prior art teaches that slurries of such particulate materials are useful for application to plants. The addition of further plant growth enhancing agents could have been *prima facie* obvious to the ordinary artisan. Determination of composition parameters such as concentration and pH is likewise within the skill level of the ordinary artisan.

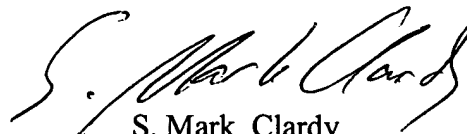
No unobvious or unexpected results are noted; no claim is allowed.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mark Clardy whose telephone number is 571-272-0611. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Mark Clardy
Primary Examiner
Art Unit 1617

March 27, 2006